CITY OF ISSAQUAH WASHINGTON

Community Planning & Development Department
1775 – 12th Ave NW | P.O. Box 1307
Issaquah, WA 98027
425-837-3100
issaquahwa.gov

NOTICE OF DECISION
ADMINISTRATIVE ADJUSTMENT OF STANDARDS

TO: Public Works, Transportation Division (via email)
City of Issaquah
1775 12th Ave NW
Issaquah, WA 98027

PROJECT: 12th Avenue NW &17th Avenue NW Street Improvements

PERMIT NUMBER: AAS21-00004 / STRT21-00001

DATE OF DECISION: August 17, 2021

REQUEST: An Administrative Adjustment of Standards application to construct an alternative right-of-way configuration, which will consist of removing on-street parking, keeping the existing turn lane, and relocating the bicycle lanes.

LOCATION: 12th Avenue NW & 17th Avenue NW (SR-900)

SUBAREA: Central Issaquah

DECISION:

The applicant, City of Issaquah Public Works Department, has requested an Administrative Adjustment of Standards (AAS) to allow for the construction of an alternative right-of-way configuration, which meets the intent and approval criteria of the Central Issaquah Development and Design Standards (CIDDS). The following adjustment is APPROVED.

AUTHORITY:

CIDDS Section 1.1.E.1 Administrative Adjustment of Standards Flexibility: Purpose

The purpose of the AAS is to provide for flexibility in modifying the Development and Design Standards while maintaining consistency with the vision, goals and policies of the Central Issaquah Plan. The vision, goals, and policies within the Central Issaquah Plan are fixed, methods to implement can be flexible.

CIDDS Section 6.4.F: Auto Inclusive Circulation Facilities: Core Streets

Core Streets must be between 66-feet and 76-feet wide with a curb face ranging from 36-feet to 46-feet. The road section must consist of two 10-foot travel lanes (one in each direction), two 5-foot-wide bicycle lanes, two 6-foot-wide landscape strips, two 8-foot-wide sidewalks, and 8-foot-wide parallel parking stalls on each side of the road.

CIDDS 6.3.A: Administrative Adjustment of Standards: Approval Criteria

Standards of this Chapter may be adjusted administratively when the Director determines all the following criteria are met:

1. ***Vision.*** *The proposal is equal to or superior in achieving the intent of the Central Issaquah Plan, Development and Design Standards and this Chapter;*
2. ***Access.*** *The proposal will not create significant adverse impacts to the abutting properties or rights-of-way, dedicated tracts, or easements;*
3. ***Compatibility.*** *The proposal is compatible with, and would not significantly adversely affect, the scale, character, and design of the surrounding neighborhood or District;*
4. ***Sufficient Reason.*** *Sufficient reason is shown for the adjustment in order to address exceptional or extraordinary circumstances or conditions applicable to the facility such as existing physical constraints that are not contemplated or provided for by this chapter;*
5. ***Safety.*** *The proposal does not negatively impact public safety and operation, nor create any hazardous features;*
6. ***Services and Maintenance.*** *The proposal will not create negative impacts to public services, including fire and emergency services nor adversely affect how well the surrounding public facilities can be maintained; and*
7. ***Priorities.*** *The criteria listed in Circulation, Section 6.2.C Priorities are applied.*

Proposed Modification:

The applicant is proposing to modify the road sections along 12th Ave NW, which has been classified as a Core Street according to Figure 6A: Central Issaquah Auto Inclusive Circulation Facility Classification Map. Under the proposal, the road section will be 31-feet wide and consist of one 11-foot-wide center turn lane, two 10-foot-wide travel lanes (one in each direction), two 6-foot-wide planter strips, two 5-foot-wide bike lanes, and two 8-foot-wide sidewalks. The road section is intended to prioritize nonmotorized users and address congestion issues while maintaining functionality. This is a significant deviation from the standards for Core Streets, outlined in CDDS 6.4F.

A comparison of the proposed modification and the standards is as follows:

Road Section Comparison								
	Pavement Width	No. of Lanes	Lane Width	Bike Lane width	Sidewalk Width	Planting Strip	Parking Width	Right-of-Way Width
Adopted	36'-46'	2	10'	5'	8'	6'	8'	66'-76'
Proposed	31'	3	10-11'	5'	8'	6'	Not provided	69'

Note: The proposal also shows the road section at the 12th Ave NW and 17th Ave NW (SR-900) approach. This intersection is regulated by the Costco Development Agreement, which requires the construction of a double left turn westbound to southbound SR-900, bicycle lanes in both directions, and 6-foot-wide sidewalk on both sides of the street without landscape strips. The first 180-feet approaching the intersection is consistent with this requirement and is not a part of the AAS request.

Rationale/Analysis:

To determine whether the proposed AAS should be approved, the City must find that all of the criteria, outlined in CIDDS 6.3.A, have been met.

1. ***Vision.*** *The proposal is equal to or superior in achieving the intent of the Central Issaquah Plan, Development and Design Standards and this Chapter;*

   Staff Response: The intent of CIDDS Chapter 6: Circulation Facilities "…is to establish standards for the design, configuration and performance of a comprehensive, highly interconnected Circulation Facility network that encompasses all public and private facilities necessary for motorized and nonmotorized movement." CIDDS 6.1. In addition, CIDDS 6.4.F, Core Streets are intended to "…connect a mix of uses that are oriented towards creating a livable street character with pedestrian and bicycle priority, yet carrying slightly higher volumes of vehicular traffic than Pedestrian Priority Streets." Walkways along Core Streets should be wide, and a designated bike land should be present for the safety of cyclists.

   The applicant is proposing to eliminate on-street parking, create protected bicycle lanes, and keep the existing center turn lane. To create a pedestrian friendly environment, the required on-street parking will be removed and bicycle lanes will be constructed in between the sidewalk and landscape strip. These modifications prioritize nonmotorized users and increase safety.

   Core Streets do not typically contain center turn lanes. However, 12th Ave NW currently has a center turn lane that provides access in and out of the adjacent commercial businesses. Removing the center turn lane would result in vehicle back-ups impacting traffic at 17th Ave NW (SR-900) and surrounding driveways.

To eliminate vehicular congestion and ensure reasonable vehicle access will be maintained, the applicant is proposing to keep the existing center turn lane.

The proposed road section is equal to or superior to the classified road section outlined in CIDDS. The proposal creates a safe pedestrian and bicycle network while prioritizes nonmotorized users over motorized users, which is consistent with the intent of the Circulation Facilities Code (Chapter 6) and the Central Issaquah Plan.

2. ***Access.*** *The proposal will not create significant adverse impacts to the abutting properties or rights-of-way, dedicated tracts, or easements;*

   Staff Response: A traffic memorandum prepared by HDR dated August 11, 2020, which assessed the roadway conditions with and without the proposed improvements, was provided to staff for review. According to HDR, vehicle traffic within this area is expected to increase in the future, resulting in more congestion and delays. If the proposed road improvements are not constructed by 2022, the roadway will be operating at one of the City's lowest acceptable standards. Please see Attachment B to learn more about traffic impacts within the project site. Adding the double turn lane and keeping the center turn lane is one mitigation measure needed to address vehicle congestion and improve vehicle access, which has the potential to backup and impact surrounding driveways.

   Per the CIDDS 6.4.F, a Core Street section must provide on-street parking on both sides of the street. Here, the addition of on-street parking would increase the road section width, resulting in the acquisition of adjacent, private land by the City. If this were to happen, adjacent properties, specifically the hotel, would lose a significant amount of on-site, private parking stalls currently being utilized for their businesses. If on-street parking were to be added to this road section, the number of existing on-site parking stalls that would be removed would be greater than the number of on-street parking stalls created alongside 12th Ave NW. Thus, adding on-street parking would create a significant adverse impact to adjacent parcels.

   Driveways providing access to and from the adjacent parcels will be reconstructed in the same location and width as they exist today. Although the driveways are located within the City's right-of-way, reconstructing the driveways to comply with CIDDS 6.4.K would significantly impact access and create an undue hardship on the property owners prior to redevelopment. However, should any of the adjacent parcels redevelop in the future, the driveways must comply with CIDDS 6.4.K.

   The proposed road section will not create any significant adverse impacts to abutting properties or rights-of-way, dedicated tracts, or easements. The proposal is intended to mitigate future increases in vehicle traffic, which has the potential to create access issues for surrounding driveways.

3. ***Compatibility.*** *The proposal is compatible with, and would not significantly adversely affect, the scale, character, and design of the surrounding neighborhood or District;*

   Staff Response: Compared to adjacent streets, eliminating on-street parking is consistent with the surrounding areas. Surrounding streets, Lake Dr, 11th Ave NW and SE 62nd St, are also classified as Core Streets and do not provide on-street parking. The proposal also keeps the street narrow and balances pedestrian and bicycle use with vehicular traffic. Therefore, the proposal is compatible with CIDDS and will not significantly adversely affect, the scale, character, and design of the surrounding neighborhood or District.

4. ***Sufficient Reason.*** *Sufficient reason is shown for the adjustment in order to address exceptional or extraordinary circumstances or conditions applicable to the facility such as existing physical constraints that are not contemplated or provided for by this chapter;*

   Staff Response: The applicant is proposing to remove on-street parallel parking from the road sections. This design change is consistent with the overall character of the area and is the least impactful to adjacent parcels. There is an existing hotel on the west side of 12th Ave NW and a shopping center on the east side. All of the surrounding uses provide ample parking. Should on-street parking be constructed, it will most likely go unused due to existing parking availability. Furthermore, if the applicant were to be required to comply with Core Street standards, under CIDDS 6.4.F, the applicant would need to acquire additional land from the hotel, resulting in parking stalls being removed from their parking lot. The overall number of stalls lost due to road improvements would be greater than the number of on-street stalls added.

   The Core Street section shows on-street bicycle lane. Instead of on-street lanes, the applicant will construct raised bicycle lanes. This design alternative will provide a buffer between bicyclist and vehicle traffic to increase safety.

   The applicant has provided the required submittal documents justifying the need for the road improvements. Please see attachments for more details. The proposal has provided sufficient reasons as to why an adjustment is necessary are not contemplated by CIDDS Chapter 6.

5. ***Safety.*** *The proposal does not negatively impact public safety and operation, nor create any hazardous features;*

   Staff Response: As discussed in the project narrative and traffic memorandum, the proposal is intended to address increased traffic volumes and relieve traffic congestion. The proposal will not negatively impact public safety and operation, nor create any hazardous features, but improve corridor accessibility for motorized and nonmotorized users.

6. ***Services and Maintenance.*** *The proposal will not create negative impacts to public services, including fire and emergency services nor adversely affect how well the surrounding public facilities can be maintained; and*

   Staff Response: The minimum width required for fire and emergency vehicles will be provided. The proposal will not create negative impacts to public services, including fire and emergency services nor adversely affect how well the surrounding public facilities can be maintained.

7. ***Priorities.*** *The criteria listed in Circulation, Section 6.2.C Priorities are applied.*
   1. *Prioritize walking and biking facilities over those for vehicles, by modifying vehicular circulation facilities rather than those for pedestrians and bicycles, while maintaining functionality for vehicles. For example, reduce the width of circulation facilities components for cars, such as:*
      a. *On-street parking, limited to low use private streets or where bike lanes are present, or*
      b. *Travel lanes over ten (10) feet wide where truck use is low.*

      Staff Response: The project is prioritizing nonmotorized users over motorized users by eliminating on-street parking to accommodate sidewalks for pedestrian connectivity.

   2. *Prioritize Circulation Facility elements that contribute to a Pedestrian Friendly environment. For example, retaining planting strips, especially those containing street trees, and on-street parking.*

      Staff Response: To create a pedestrian-friendly environment, the applicant is proposing to construct sidewalks with either a bicycle lane and landscape strip or a single bicycle lane. Both designs will create a buffer between pedestrians and vehicle traffic consistent with this priority.

   3. *Eliminate auto components, such as on-street parking, where it is unlikely to be used such as adjacent to critical areas or where adjacent uses are unlikely to generate demand for them, both now and as anticipated in the future.*

      Staff Response: The applicant is proposing to remove on-street parallel parking as it is unlikely to be used due to surrounding uses having ample parking to serve customers. However, as redevelopment occurs in the future, reintroducing on-street parking would be appropriate.

   4. *Where anticipated traffic volumes are low, and consistent with adopted standards, consider allowing bicycle and pedestrians to share surfaces with vehicles. Where segregated bike facilities are removed, provide wayfinding to ensure bicyclists can identify the route.*

Staff Response: No on-street bicycle lanes are proposed. Instead, two protected 5-foot-wide bicycle lanes, which will be placed between the 8-foot sidewalks and 6-foot planter strips, are proposed for increased safety. Bicycle lane markers will be provided per City Street Standards.

5. *Only consider reducing the width of the following Circulation Facilities where the pedestrian use, at buildout of Central Issaquah, is likely to be low in demand, the right of way is constrained, or where connectivity is unnecessary or not planned:*
   a. *Sidewalk or pedestrian components shall in no case be reduced to less than six (6) feet.*
   b. *Landscape components shall in no case be reduced to less than a four (4) foot clear area, which if reduced to the maximum extent, must include root containment to protect against the raising of sidewalks or utility appurtenances.*

   Staff Response: No modifications are being proposed to the sidewalk and landscape strip widths.

PUBLIC COMMENTS:

Public comments were received during the review process. The City received written comments, which included concerns regarding bicyclist having a seamless connection to surrounding properties. The following is a summary of the public comments and staff response. All public comments received can be reviewed under Attachment E.

Public Comment: There is a concern that bicyclists traveling southbound on 12th Ave NW will not be able to easily access businesses along the eastside of 12th Ave NW (e.g., Pickering Square shopping center) due to the raised bicycle lane.

Response: Bicyclists that are traveling southbound and wish to access businesses on the opposite side of 12th Ave NW can travel to the crosswalk located at Lake Dr, cross over 12th Ave NW, travel northbound, and turn right into the business' driveway. Alternatively, bicyclists can travel southbound, exit the bicycle lane early at the driveway nearest to 17th Ave NW, and merge with vehicle traffic to turn left via the center turn lane.

TIME LIMIT OF DECISION:

This final decision approving this Administrative Adjustment of Standards is valid for five years, as specified by Central Issaquah Development and Design Standards Section 3.11, or as amended by the Code.

August 17, 2021

Valerie Porter, Associate Planner — Date

ATTACHMENT LIST:

Attachment A: Application

Attachment B: Project Narrative

Attachment C: Plan and Section, dated April 22, 2021

Attachment D: Traffic Memorandum, dated August 11, 2020

Attachment E: Public comment dated June 24, 2021

CC: John Mortenson, Transportation Engineering Manager
Minnie Dhaliwal, Director of Community Planning & Development
Lucy Sloman, Land Development Manager
Emily Appleton, Development Engineering Manager

Attachment A

CITY OF ISSAQUAH

Land Use Application #959141 - 12th Ave NW & SR 900/17th Ave NW Improvements

Applicant

First Name	Last Name	Company Name
Public Works Engineering	City of Issaquah	City of Issaquah

Number	Street	Apartment or Suite Number	E-mail Address
1775	12th Ave NW		PWE@issaquahwa.gov

City	State	Zip	Phone Number	Extension
Issaquah	WA	98027	4258373400	

Contractor

Company Name

Number Street Apartment or Suite Number

City State Zip Phone Number Extension

State License Number License Expiration Date UBI # E-mail Address

Project Location

Number Street Floor Number Suite or Room Number

City Zip Code County Parcel Number

Associated Building Permit Number Tenant Name

Additional Information (i.e. equipment location or special instructions).

Work Location

SR900 & 12 Ave NW

Property Owner

First Name Last Name or Company Name

Number Street Apartment or Suite Number

City State Zip

Certification Statement - The applicant states:

I certify that I am the owner of this property or the owner's authorized agent. If acting as an authorized agent, I further certify that I have full power and authority to file this application and to perform, on behalf of the owner, all acts required to enable the jurisdiction to process and review such application. I have furnished true and correct information. I will comply with all provisions of law and ordinance governing this type of application. If the scope of work requires a licensed contractor to perform the work, the information will be provided prior to permit issuance.

Date Submitted: 5/5/2021 **Submitted By:** Public Works Engineering City of Issaquah

CITY OF ISSAQUAH

CITY OF ISSAQUAH

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Land Use Application #959141 - 12th Ave NW & SR 900/17th Ave NW Improvements

Project Contact

Company Name:

Name:	Isabel Diaz	**Email:**	isabeld@issaquahwa.gov
Address:	PO Box 1307 Issaquah WA 98027	**Phone #:**	425-837-3415

Project Type	Activity Type	Scope of Work
Any Project Type	Deviations, Modifications, Variances, or Waivers	Administrative Adjustment of Standards

Project Name: 12th Ave NW & SR 900/17th Ave NW Improvements

Description of Work: The City of Issaquah's 12th Ave NW & SR 900/17th Ave NW Improvements Project proposes widening the northbound SR 900/17th Avenue NW approach to include an exclusive right turn lane to eastbound 12th Avenue NW, Widening the westbound 12th Avenue NW approach to provide double left turn lane, Constructing new sidewalks, bike lanes, curbs and gutters, curb ramps, and installing streetlights, landscaping, water main replacement, and storm drainage facilities.

Project Details

Project Information

Use (s) - proposed	This project widens the northbound SR 900/17 Ave NW approach to 12th Ave NW for an exclusive right-turn lane and widens 12th Ave NW at SR 900/NW Sammamish Rd to provide additional westbound left-turn lane capacity

Attachment B

Memorandum

To: Community Planning and Development Department
From: Isabel Diaz, Public Works Engineering
Date: May 18, 2021
Subject: 12th Avenue NW and SR 900/17th Avenue NW Improvements Project
Request for Administrative Adjustment of Standards

Project Description

The City of Issaquah's 12th Avenue NW and SR 900/17th Avenue NW Improvements Project proposes the following improvements (see Exhibit 1):

- Widen the northbound SR 900/17th Avenue NW approach to include an exclusive right-turn lane to eastbound 12th Avenue NW
- Widen the westbound 12th Avenue NW approach to provide double left turn lane
- Construct new sidewalks, bike lanes, curbs and gutters, curb ramps, and
- Install streetlights, landscaping, water main replacement, and storm drainage facilities.

The project also includes wetland mitigation for Project impacts. Design is currently at 30%. Advertisement is planned in December 2021 and construction is scheduled to start in spring 2022.

Request for Administrative Adjustment of Standards (AAS)

12th Avenue NW is classified as core street in the Central Issaquah Development and Design Standards (CIDDS). Table 1 shows the CIDDS requirements and the proposed design elements on these streets. Non-conforming elements for each section are discussed accordingly.

The reasons for these requests are to:

- Avoid significant adverse impacts to the environmentally sensitive areas;
- Avoid significant adverse impacts to private properties;
- Increase capacity for turning movement queues;
- Enhance safety; and
- Be consistent with existing character of the area and forward compatible for future development.

Table 1. Central Issaquah Development and Design Standards (CIDDS) and Proposed Facilities

	CIDDS – Core Streets	Proposed - 12th Ave NW (north-south segment)	Proposed – 12th Ave NW (at SR900/17th Ave NW)
Right-of-Way (ROW)	66′ – 76′	70′	67′
Face of Curb to Face of Curb	36′ – 46′	31′ *	54′ *
Travel Lanes	2 @ 10′ each	2 @ 10′ each[1]	2 @ 11′ each[1] *
Bicycle Lanes	2 @ 5′ each	2 @ 5′ each[2]	2 @ 5′ each
Parking Lanes	Parallel / 2 @ 8′ each	None *	None *
Medians	None	None	None
Center Turn Lane	None	11′ *	None[3]
Landscape / Amenity Zone	6′	6′	None *
Walkway Type	8′ Sidewalk	8′ Sidewalk	6′ Sidewalk *
Distance Between Intersections	500′ maximum	N/A[4]	N/A[4]

* Element doesn't meet CIDDS.

[1] Dimensions are for thru lanes per typical sections; there are variations with the turn lanes.

[2] Dimensions are for protected bike lanes per typical section.

[3] The approach to the intersection will have multiple turn lanes onto 17th Ave NE that vary in width because of the curve in the alignment.

[4] There are no intersections between 12th Avenue NW & SR 900/17th Ave NW and southern project limits.

1. 12th Avenue NW: North-South Segment

a. *Lanes*. Two 10-foot lanes are proposed on the north-south segment of 12th Avenue NW that conform to CIDDS width. No on-street bicycle lanes are proposed. Alternatively, two protected bicycle lanes, 5-feet wide each, are proposed for increased safety. The bicycle lanes are between the 8-foot sidewalks and 6-foot planter strips that separate it from the street.

No on-street parking lanes are proposed, in consistency with the overall character of the area. Designing on-street parking lanes along 12th Avenue NW would have required larger right of way takes from both the Holiday Inn parcel on the west side of the roadway and Pickering Square parcel on the east side of the roadway. On-street parking would unlikely be used due to adjacent uses in the area, consisting of a hotel and retail spaces that have their current parking demand addressed with their existing on-site parking spaces. In addition, the impact on existing number of parking spaces inside Holiday Inn parcel would be larger than the resultant number of on-site parking spaces to be added.

There is currently a center turn lane along 12th Avenue NW to provide access in and out of the adjacent commercial businesses. Removing the center turn lanes would cause back-ups to the traffic signal at SR900/17th Avenue NW due to its proximity to several of the driveways. Therefore, an 11-feet center turn lane is proposed to maintain access to Holiday Inn parcel and Pickering Square parcels.

b. *Movement Zones.* 8-foot-wide sidewalks and 6-foot-wide planter strips are proposed for both sides throughout this section of 12th Avenue NW, meeting CIDDS criteria.

c. *Overall Widths.* The proposed median/left turn lane, and the 2 through lanes result in a curb-to-curb width of 31 feet, 5 feet less than the minimum width specified in CIDDS. The minimum width considers the inclusion of on-street parking, which, as discussed above, is not included in the design of the project. The proposed 31-foot width and the sidewalks are expected to accommodate both motorized and non-motorized traffic without impacting the existing Pickering Square building (currently a Michaels store) and Holiday Inn existing on-site parking spaces. Additionally, the impact to widen further would be significant on both properties.

2. 12th Avenue NW: Westbound approach to SR900/17th Avenue NW intersection

a. *Lanes*. Two 11-foot travel lanes (one in each direction) are proposed for thru traffic on the approach to SR900/17th Avenue to accommodate vehicles turning from SR900/17th Avenue NW and to/from NW Sammamish Rd. To increase capacity for the movements from westbound 12th Avenue NW to SR900/17th Avenue NW and alleviate congestion, a double left turn lane (11-foot each lane) is also proposed in the 180 feet approaching the intersection. This is included in the Costco Development Agreement with the City.

The proposed section matches the project purpose and need which is to improve operations at the intersections and specifically this leg of the intersection. The design allows for adequate storage for left turning traffic onto SR900/17th Avenue NW, decreasing backups which are a safety issue along 12th Ave NW in the existing

configuration. Designing this roadway without the additional turn lane would decrease traffic operation for the westbound approach to a reduced level of service, resulting in back-ups to the adjacent commercial driveways along 12th Avenue NW. Refer to the attached Traffic Operational Analysis for more detailed information.

No on-street parking lanes are proposed approaching SR900/17th Avenue NW. Designing on-street parking lanes along 12th Avenue NW would have required larger right of way takes from the Holiday Inn parcel as well as increased mitigation of the wetland that would be impacted with the project. In addition, providing on-street parking at this location would disrupt traffic flow and be a safety hazard due to its proximity to the signal.

b. *Movement Zones.* Due to the limited right-of-way available and to reduce project footprint, 6-foot-wide sidewalks and no planter strips are proposed for both sides throughout the approach to SR900/17th Avenue NW. A wider roadway section to meet CIDDS criteria would result in a larger footprint that increases the impact to the intersection area and to the wetlands.

c. *Overall Widths.* The two travel lanes and double left turn lanes result in a curb-to-curb width of 44 feet, meeting the CIDDS maximum width of 46 feet. However, this is omitting the bicycle lanes which are raised at sidewalk level through the section and are outside the curb width. In the CIDDS maximum width, the bicycle lanes are street level which would then increase the width of our Project's section to 54 feet. The maximum width considers the inclusion of on-street parking and planter strips. As discussed above, on-street parking and planter strips are not included in this section of the project. The proposed geometry is considered a compromise between meeting turning lane capacity goals and restricting the footprint of the project to minimize the environmental impact. The proposed 54-foot width (including the raised bicycle lanes) and the sidewalks are expected to accommodate both motorized and non-motorized traffic without impacting the existing Tovah Corporation building to the north of 12th Avenue NW (currently a T-Mobile store). Additionally, the impact to widen further would be significant on the wetlands.

Approval Criteria

Criteria from Chapter 6.0 Circulation Facilities, Section 6.3.A Approval Criteria of CIDDS are met with the adjustment of the Core Street standards as follows:

Vision. The proposed facilities are consistent with the intent of the Central Issaquah Plan and Circulation Facilities chapter, prioritizing nonmotorized users over motorized users by eliminating on-street parking to accommodate sidewalks for pedestrian connectivity.

Access. The proposed road section will not create significant adverse impacts to abutting properties or rights-of-way. The center turn lane will maintain vehicle access to abutting parcels. The proposed sidewalk and bike lanes will improve pedestrian and bike access. Additionally, the elimination of on-street parking minimizes the acquisition of right-of-way acquisition.

Compatibility. The proposed facilities are compatible with the character of surrounding areas. No on-street parking lanes are proposed, consistent with existing facilities in the area.

Additionally, there is currently a center turn lane along 12th Avenue NW proposed to remain to maintain access in and out of the adjacent commercial businesses on existing parcels.

Sufficient Reason. A second left turn left turn lane is provided for northbound traffic at SR900/17th Avenue intersection to reduce congestion along 12th Avenue NW. The roadway widening on the intersection approach is constrained by existing private properties on both sides of the road and impacted wetland on the southwest corner. Along 12th Avenue NW, the roadway continues to be constrained by private properties on both sides. No on-street parking is included to reduce right-of-way acquisition and protected bicycle lanes are proposed for increased safety.

Safety. The proposed adjustment of standards will not incur in negative impacts to vehicular safety. Components included in the adjustments will improve pedestrian and bicycle safety through the proposed connection of sidewalks and inclusion of protected bicycle lanes.

Services and Maintenance. The proposed adjustments will accommodate service and maintenance vehicles without impacts.

Priorities. Criteria listed in Chapter 6.0 Circulation Facilities, Section 6.2.C Priorities of CIDDS were followed in determining proposed facilities. With the limited right-of-way available, we have prioritized pedestrian friendly circulation facilities over vehicular components with the elimination of on-street parking to provide full width planting strips and sidewalks for most of the project limits.

Summary

In summary, the core streets that are the subject of this AAS do not have on-street parking. They do have 6- to 8-foot sidewalks on both sides due to proximity to environmentally sensitive areas. Only the approach to SR900/17th Avenue NW has 6-foot sidewalks.

The primary reasons for the geometric elements warranting this request for an AAS to the CIDDS are:

- minimizing impacts to environmentally sensitive areas,
- geometric constraints within the alignment relative to ROW impacts,
- existence of on-site parking for existing adjacent uses, and
- consistency with existing street environments.

Attachment C

WETLAND BOUNDARY

17TH AVE NW

NW SAMMAMISH RD

10' WIDE RAMP

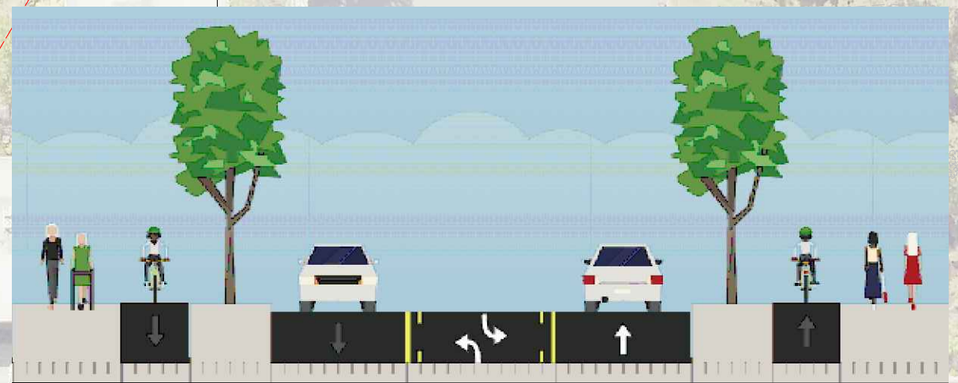
10' WIDE RAMP

5' WIDE RAMP

TRANSITION TO MIXING ZONE

12TH AVE NW

NW SAMMAMISH RD



A SECTION

TOVAH ISSAQUAH HOTEL LLC
1801 12TH AVE NW 98027
2024069097

TOVAH CORPORATION
1801 12TH AVE NW 98027
2024069074

SIDEWALK LEVEL BICYCLE LANES

12TH AVE NW

PARCEL BOUNDARY

TRANSITION TO MIXING ZONE

PICKERING SQUARE LLC
1802 129TH AVE NE 98027
3557500150

PICKERING SQUARE LLC
1802 129TH AVE NE 98027
3557500310

EXISTING ROW

N

HORZ SCALE 30' 0' 30' 60' IN FEET

HDR

CITY OF ISSAQUAH WASHINGTON

12TH AVENUE NW AND SR 900 / 17TH AVE NW IMPROVEMENT PROJECT
PREFERRED ALTERNATIVE

PREPARED
04/22/21

Exhibit 1

Memorandum

Date:	August 11, 2020
Project:	12th Avenue NW and SR 900/17th Avenue NW Improvement Project (CIP T-004)
To:	John Mortenson, PE
From:	Robert Acevedo, PE Jake Pi, PE, PTOE
Subject:	Traffic Operational Analysis

The City of Issaquah's (City) 12th Avenue NW & SR 900/17th Avenue NW Improvements project proposes to construct additional turn lanes for improved intersection traffic operations. A previous traffic study has been conducted for this project by Jacobs Engineering in August 2019 and this traffic study builds upon those results. This memorandum includes the project context and description, summarizes the findings of the previous traffic study, describes the updated analysis performed by HDR and resultant findings, and provides comprehensive conclusions and recommendations for the Project design.

Project Context and Description

The intersection of 12th Avenue NW & SR 900/17th Avenue NW is located just south of the Lake Sammamish State Park and to the north of Interstate 90 (I-90). SR 900, classified as a Designated Highway of Regional Significance[1], is a vital connection for Lake Sammamish, Commercial Business Parks (such as the Pickering Square), East Lake Sammamish Parkway, and outdoor activity centers. NW Sammamish Road to the east of the intersection is classified as a Principal Arterial[1]. Together, this corridor serves heavy traffic demand as the link between I-90 interchange and the commercial developments in the Central Issaquah subarea and regional growth center. Freight relies on this corridor for access to businesses. 12th Avenue NW, recently connected with SE 62nd Street, is a vital east-west connection across the large commercial development on either side of East Lake Sammamish Parkway SE, Pickering area. The Issaquah-Preston Trail/The Pickering Trail crossing SE 62nd Street, connecting to East Lake Sammamish Trail and Lake Sammamish State Park. The reconfiguration of this 12th Avenue NW/SE 62nd Street corridor

[1] City of Issaquah Comprehensive Plan

to include bike lanes and improved sidewalks is an important improvement for the City of Issaquah and its trail users in additional to the benefits for vehicular users. **Figure 1** shows the project area.

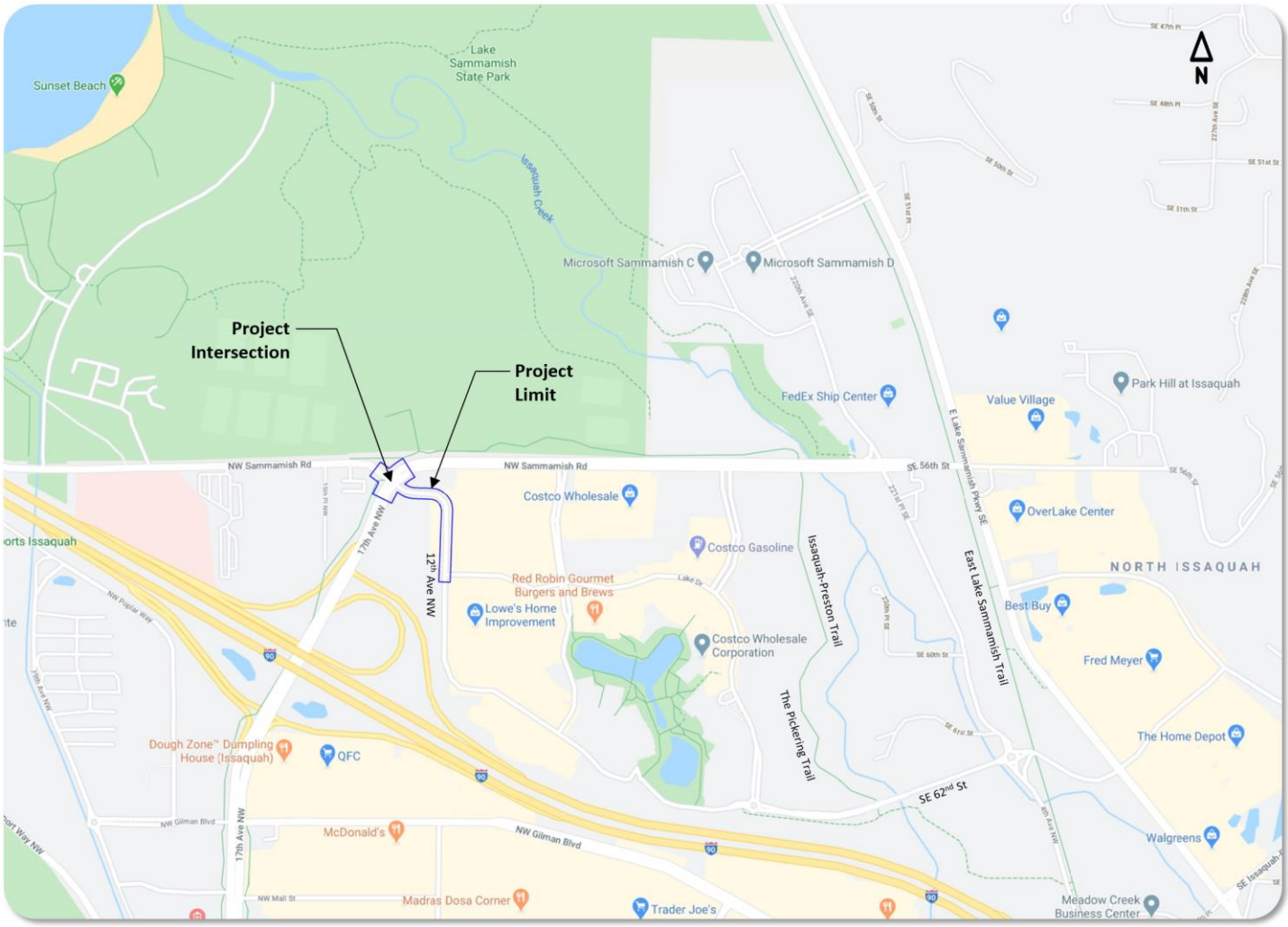


Figure 1: Project Area

As the intersection of these two significant and unique corridors, this project intersection has an important role for the long term vision of the City. Currently, with such heavy traffic demand, this intersection experiences severe congestion during the peak periods. And with the planned growth in this area, the vehicle traffic level of service (LOS) is anticipated to degrade over time.

There are three King County Metro bus routes that pass through the project intersection. All three of these routes travel on SR 900, and at the project intersection the routes branch out to the various legs of the intersection (east leg, west leg, and north leg). Route 271 connects Issaquah Transit Center, Eastgate Park and Ride in Bellevue, Bellevue Transit Center, and University of Washington. Route 269 connects Issaquah Transit Center, South Sammamish Park and Ride in Sammamish, Bear Creek Park and Ride in Redmond, and Overlake Park and Ride in Bellevue. Route 200 connects Issaquah Community Center, Issaquah Transit Center, and Swedish Medical Center Issaquah. **Figure 2** shows the transit route map within the project area.

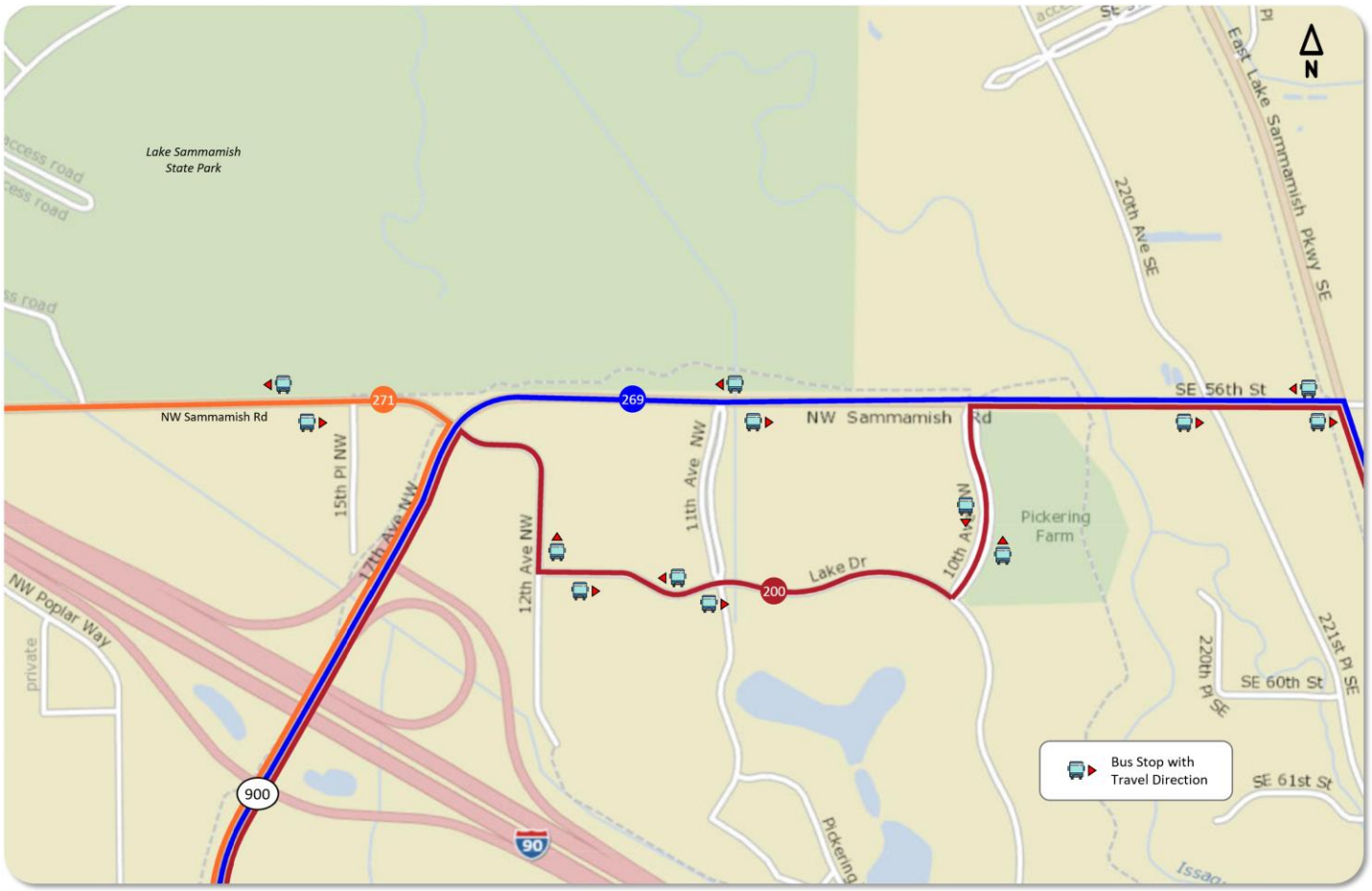


Figure 2: Transit Route Map

The City's 2019-2024 Transportation Improvement Program (TIP) includes two projects that directly impact this intersection. Project TR 004, this project, consists of widening the westbound (12th Avenue NW) and northbound (17th Avenue NW) legs to provide an additional dedicated westbound left-turn lane (2 total) and northbound right-turn lane. Project TR 035 consists of widening 17th Avenue NW and NW Sammamish Road (east of intersection) to 3 lanes in each direction between I-90 westbound ramps and East Lake Sammamish Parkway SE. This project also consists of constructing an additional general purpose lane on NW Sammamish Road (east of the intersection) and 17th Avenue NW from 11th Avenue NW to the metered location on the westbound I-90 on-ramp.

Previous Traffic Study

The previous study was completed in August 2019. This study was based on the 2017 traffic counts and the City's travel demand model that forecasts traffic for future 2040. This forecast is based on the existing land use, committed (approved by the City but not yet constructed) land use, as well as the planned land use included in the City's Comprehensive Plan. The project was planned to be constructed by 2022, and traffic volume for 2022 was developed by interpolated volumes between 2017 actual counts and 2040 projected volumes.

It analyzed five PM peak hour scenarios as follows:

- 2017 Existing Traffic, No-Build
- 2022 Future Traffic, No-Build
- 2022 Future Traffic, Build
- Committed Traffic, No-Build
- Committed Traffic, Build

The "No-Build" and "Build" terms refer to the roadway condition without or with the project. The "Committed Traffic" refers to the interpolated 2022 traffic plus the committed land use traffic.

The LOS analysis showed that from 2017 through 2022 Build condition, the intersection operates at LOS D, which is the lowest acceptable standard by the City. Once the Committed Traffic is added to 2022 volume, under the No-Build condition it operates at LOS F, and under the Build condition it improves one letter grade to LOS E, but still below the City's standard.

The queueing analysis showed that in 2022 under No-Build condition, the northbound average and 95th percentile queues spill back to I-90 westbound ramps. Providing the dedicated turn lanes under the Build condition reduces these northbound queues to avoid spillovers. As for the westbound approach, under the No-Build condition the westbound left-turn queue exceeds the available storage from 2017 and onward, but providing the second westbound left-turn lane under the Build condition reduces the queues to stay within the available storage.

It is stated that although it was not included in this analysis, the TR 035 project would be needed by 2040 to accommodate full build-out of the City's Comprehensive Plan.

The previous study memorandum is included in **Attachment A**.

Updated Traffic Analysis

The updated traffic analysis, performed by HDR, is based on the forecasted 2040 traffic from the travel demand model based on the existing land use, committed land use, and the planned land use included in the Comprehensive Plan. It is understood that under the 2040 full build out condition, the 12th Avenue NW & SR 900/17th Avenue NW intersection will operate at LOS F even with the projects TR 004 and TR 035 being constructed. TR004 is a required project per a development agreement between the City and Costco. The improvements from TR004 will significantly improve the functionality of the intersection and reduce delays even though it does not improve the metrics for LOS above the LOS F designation.

Traffic Volumes

During the 2040 PM peak hour, the total entering traffic volume at the project intersection is 6,245 vehicles per hour (vph). This is a 45% increase from 2017 existing condition, and 17% increase from the Committed Traffic condition. **Table 1** shows the 2040 PM peak hour traffic volumes used in the updated traffic analysis as well as the previous years' traffic volumes.

Table 1: PM Peak Hour Traffic Volumes

Intersection Approach	Analysis Year			
	2017	2022	Committed Traffic*	2040
Eastbound	580	700	1,025	1,105
Westbound	385	470	395	770
Northbound	1,525	1,685	1,845	2,265
Southbound	1,820	1,885	2,080	2,105
Total	4,310	4,740	5,345	6,245

* Background 2022 traffic plus anticipated traffic from approved projects

Options Considered

The updated analysis compared four options as described below and shown in **Figure 3**:

- Option 0: Do Nothing
  - No improvement to current layout of the intersection.
- Option 1A: Baseline
  - Add a dedicated northbound right-turn lane and a second dedicated westbound left-turn lane.
- Option 1B: Northbound-Right as Slip Lane
  - TIP Concept for Project TR004. Same as Option 1A, but provide slip lane treatment for northbound right-turn. No dedicated receiving lane; therefore, turning vehicles must yield to conflicting vehicles.
- Option 1C: Northbound-Right as Overlap Phase
  - Same as Option 1A, but modify traffic signal to provide overlap phase for northbound right with westbound left phase.

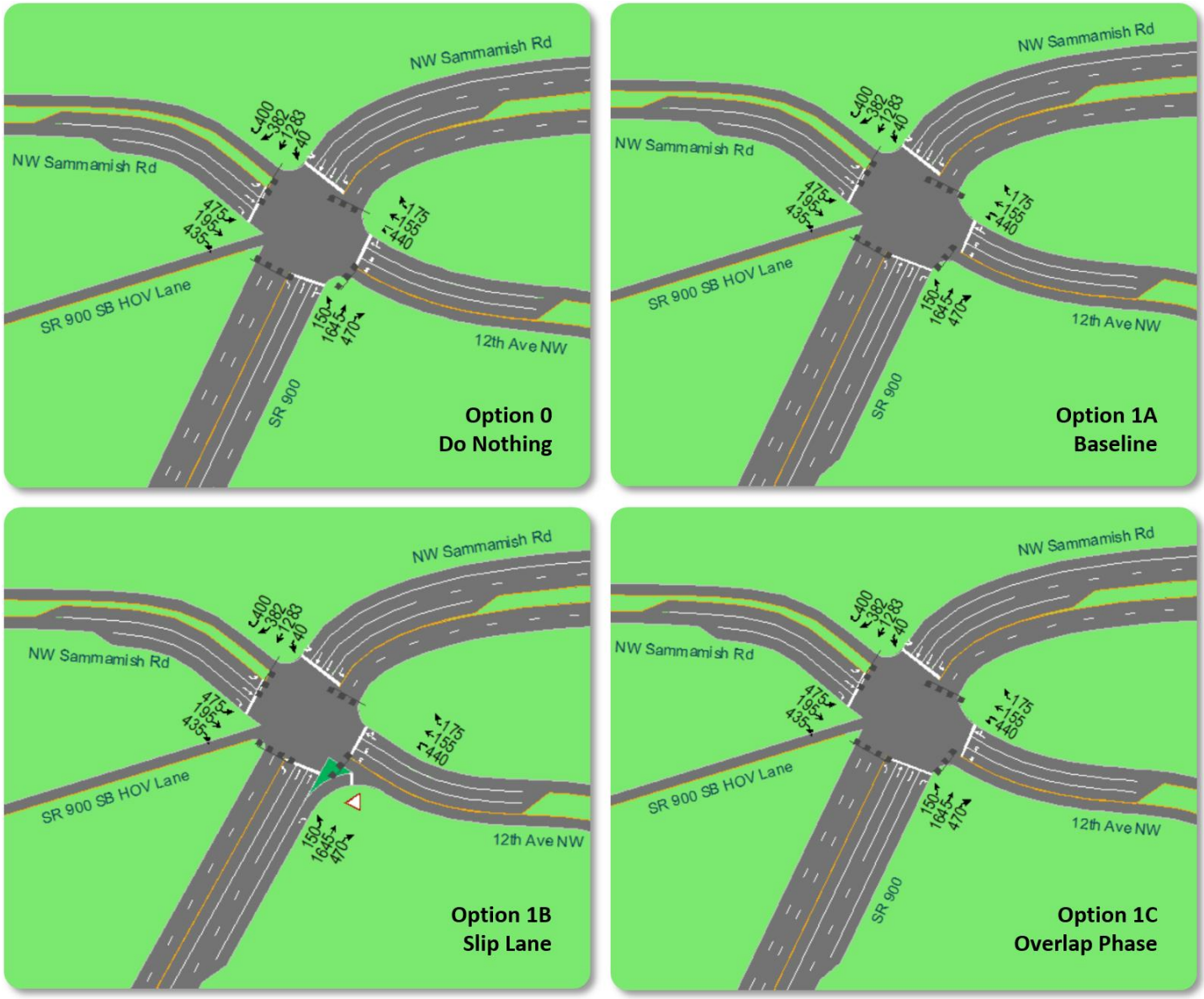


Figure 3: Analysis Options

The four options are analyzed using Synchro 10 and SimTraffic 10 software. Traffic signal at the project intersection is interconnected with the adjacent intersections along the SR 900/NW Sammamish Road (east) corridor, and these signals have uniform signal cycle lengths for coordinated operation. In the traffic model, signal cycle length for the project intersection remains unchanged, and the splits within the cycle are also kept the same across the four options to make a clear comparison. The analysis outputs used to compare the options include vehicle delay, vehicle throughput volume, and vehicle queues. Vehicle throughput volume refers to how many vehicles were able to clear the intersection during the analysis hour. Detailed analysis reports are included in **Attachment B**.

LOS, Vehicle Throughput Analysis

The analysis results show that all four options operate at LOS F. However, looking at the details within the results shows different levels of operational capacity within the LOS F range. Adding the northbound right-turn lane, in any of the three configuration, and the second westbound left-turn lane significantly improves the delay and vehicle throughput for northbound and westbound approaches when compared with the Do-Nothing alternative.

For northbound, the slip lane and the overlap phase alternatives result in similar delay and vehicle throughput. The slip lane option performs less efficiently than expected, because the northbound right-turn traffic still has the yield control before entering the east leg. This option would perform at its best if it has a dedicated receiving lane on the east leg, which would then allow a free movement for the turning traffic. The overlap option adds additional green signal time for the northbound right-turning traffic by taking advantage of the non-conflicting westbound left-turn phase. In this case, since the approaching vehicles are receiving a green indication there is no delay compared to the inherent delay with the slip lane due to the required yield.

For westbound, delay and vehicle throughput are similar across the three build options and significantly improve the operations when compared to the Do-Nothing alternative.

Table 2 shows the delay and LOS, and **Table 3** shows the vehicle throughput volumes compared with the demand.

Table 2: Delay and Level of Service

Intersection Approach	Option 0 *Do Nothing*		Option 1A *NBR, WBL*		Option 1B *1A + Slip Lane*		Option 1C *1A + Overlap*	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
EB	167	F	167	F	167	F	167	F
WB	477	F	160	F	160	F	160	F
NB	213	F	71	E	71	E	69	E
SB	90	F	90	F	90	F	90	F
Intersection	196	F	105	F	105	F	104	F

Source: Analysis with Synchro 10; Delay in seconds
EB: eastbound; WB: westbound; NB: northbound; SB: southbound; L: left; T: thru; R: right

Table 3: Vehicle Throughput Volume for Northbound/Westbound Approach

Lane Group Movement		Option 0 *Do Nothing*	Option 1A *NBR, WBL*	Option 1B *1A + Slip Lane*	Option 1C *1A + Overlap*
NB	L	119	125	120	118
	T	815	681	721	744
	T	-	689	684	700
	T/R	814	-	-	-
	R	-	387	427	388
	Total	1,748	1,882	1,952	1,950
	Demand	2,265	2,265	2,265	2,265
WB	L	184	170	167	179
	L	-	157	160	167
	T/R	136	266	256	256
	Total	320	593	583	602
	Demand	770	770	770	770

Source: Analysis with SimTraffic 10; Volume in vehicles per hour
EB: eastbound; WB: westbound; NB: northbound; SB: southbound; L: left; T: thru; R: right

Queueing Analysis

For the queueing analysis, the traffic model was adjusted such that the length of the northbound and westbound approaches are stretched out to an exaggerated length. This adjustment was done because queues spilling beyond the back end of the approach produce skewed results in the output without the modification. Making this adjustment also allows clear comparison among the analysis options as it is anticipated that some options may result in vehicle queues spilling back past the I-90 WB Ramp terminal.

The results show that providing the northbound right-turn lane and the second westbound left-turn lane greatly reduces the queue lengths for overall northbound and westbound approaches compared to the Do Nothing option. For the northbound approach, the slip lane (Option 1B) further reduces the queues compared to Do Nothing. The overlap right (Option 1C) has the greatest reduction to northbound queuing. **Table 4** shows the queue lengths. The numbers in red indicate that the queue length exceeds the storage length.

Table 4: Queue Lengths for Northbound/Westbound Approach

Lane Group Movement		Storage Length[1] (feet)	Queue Length (feet)							
			Option 0 *Do Nothing*		Option 1A *NBR, WBL*		Option 1B *1A + Slip Lane*		Option 1C *1A + Overlap*	
			Average	95th[2]	Average	95th[2]	Average	95th[2]	Average	95th[2]
NB	L	250	197	341	263	307	209	329	197	316
	T	15,000	4,727	8,997	4,161	7,633	3,585	6,347	3,189	5,548
	T	15,000	-	-	4,201	7,667	3,635	6,389	3,231	5,566
	T/R	15,000	4,765	9,041	-	-	-	-	-	-
	R	200	-	-	174	301	208	304	196	313
WB	L	180	204	208	171	224	177	227	185	205
	L	180	-	-	202	216	204	206	203	206
	T/R	15,000	5,734	10,863	2,541	4,514	3,522	7,051	2,660	4,540

Source: Analysis with SimTraffic 10

[1] Measured length up to where full-lane width is physically available. 15,000 storage is for test purposes only.

[2] 95th percentile queue length

EB: eastbound; WB: westbound; NB: northbound; SB: southbound; L: left; T: thru; R: right

Westbound Left-Turn Lane Options

The build option of the westbound approach is further analyzed to identify the effect of lengthening the dual westbound left-turn lanes. Under Option 1A, the length of the dual westbound left-turn lanes is 180 feet. This length is compared with 250-feet and 300-feet options. The vehicle throughput and queue lengths are used to compare the three options. The options are coded under the same model settings of Option 1C.

The results show that lengthening the left-turn lanes allow more vehicle throughput for the westbound approach. However, this increase in throughput is on the shared through/right-turn lane, while the throughput on the left-turn lanes themselves essentially stay the same. This is because the number of westbound left-turn vehicles that can clear the intersection during one signal cycle is bounded by the length of green time assigned to this movement. In the traffic model, the signal cycle length at this intersection is 140 seconds, and within that cycle, the green signal time allocated for the westbound left-turn movement is 19 seconds. The number of vehicles that clear the intersection within this 19-second window is 7 vehicles per lane, or 14 vehicles for the dual left-turn lane. The default build condition of 180 feet left-turn lane can store, on average, 9 vehicles in queue. The first 7 out of 9 vehicles will clear during one cycle, and the rest will wait for the next cycle. And the further lengthening of the turn lane would not change this vehicle throughput unless its green signal time is also increased. **Table 5** shows the vehicle throughput for the westbound approach.

In terms of queue lengths, longer left-turn lanes can store more vehicles in their dedicated lane, which results in shortened queue lengths on the shared through/right-turn lane. **Table 6** shows the queue lengths for the westbound approach. The numbers in red indicate that the queue length exceeds the storage length.

Table 5: Vehicle Throughput Volume for Westbound Approach

Lane Group Movement		180' *Dual WBL*	250' *Dual WBL*	300' *Dual WBL*
WB	L	179	188	188
	L	167	166	170
	T/R	256	282	299
	Total	602	636	657
	Demand	770	770	770

Source: Analysis with SimTraffic 10
EB: eastbound; WB: westbound; NB: northbound; SB: southbound; L: left; T: thru; R: right

Table 6: Queue Lengths for Westbound Approach

Lane Group Movement		Queue Length (feet)					
		180' *Dual WBL Length*		250' *Dual WBL Length*		300' *Dual WBL Length*	
		Average	95th[2]	Average	95th[2]	Average	95th[2]
WB	L	185	205	231	312	295	358
	L	203	206	272	279	319	344
	T/R	2,660	4,540	1,707	2,752	1,308	2,843

Source: Analysis with SimTraffic 10
[1] Measured length up to where full-lane width is physically available. 15,000 storage is for test purposes only.
[2] 95th percentile queue length
EB: eastbound; WB: westbound; NB: northbound; SB: southbound; L: left; T: thru; R: right

Conclusion and Recommendation

Traffic operation on the northbound approach improves with the addition of a dedicated northbound right-turn lane. A further improvement is shown with either the slip lane (Option 1B) or the overlap (Option 1C), with the overlap performing slightly better in terms of vehicle queues. The slip lane option would perform at its best if it has its dedicated receiving lane on the east leg. However, this option already consists of a larger corner radius due to its channelized right turn (refer to **Figure 3**), and the further widening of the east leg would require significant additional right-of-way (ROW) takes along the Holiday Inn parcel, as well as the mitigation of the wetland that would be impacted. The overlap option would require additional signal equipment and wiring, but reduced ROW takes and reduced wetland mitigation.

Traffic operation on the westbound approach also improves with the addition of a second westbound left-turn lane. Under the current TR 004 project, the length of the dual westbound left-turn lanes is 180 feet. Providing longer left-turn lanes does not improve the vehicle throughput of the left-turn traffic. Increasing the green signal time for this movement would improve the westbound performance, but this would be at the expense of the northbound/southbound performance which is more critical.

Based on the analysis results, this study recommends the following:

- Add a dedicated northbound right-turn lane with storage length of 200 feet, modify traffic signal to add overlap phase for this movement;
- Add a second westbound left-turn lane with storage length of 180 feet.

Traffic signal at the project intersection is interconnected with the other intersections along the SR 900/NW Sammamish Road (east) by a fiber network. Given the close proximity to the I-90 ramp terminals, it is imperative to keep coordination of the signal cycle and offset with the other signals. Retiming as part of this project should be conducted, and continuous monitoring and signal timing adjustments to reflect change in traffic and travel behavior should be carried out.

Attachment A

Previous Study Memorandum

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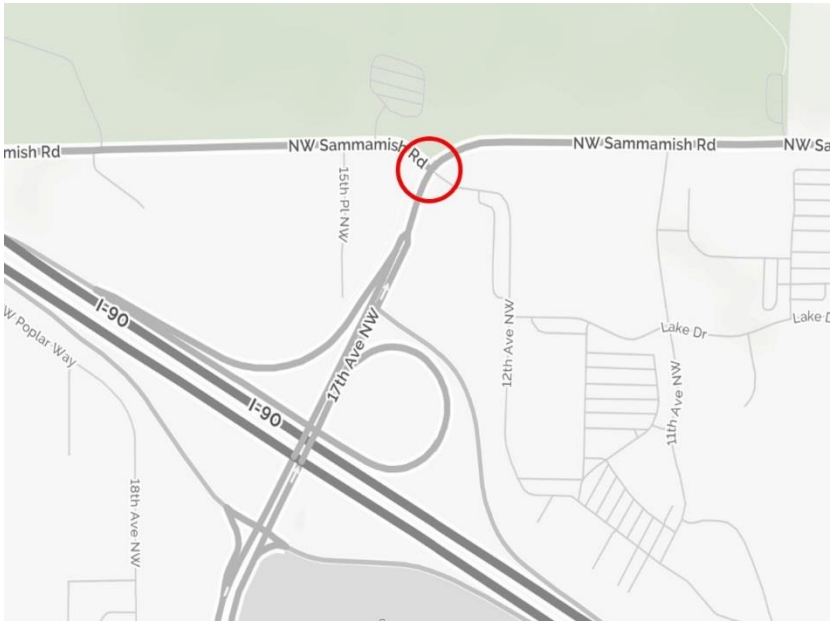
Memorandum

1100 112th Avenue NE, Suite 500
Bellevue, WA 98004
T +1.425.453.5000
F +1.425.468.3100
www.jacobs.com

Subject	**SR 900/12th Avenue NW/NW Sammamish Rd/SE 56th Street Intersection Analysis**
Attention	John Mortenson, PE
From	Charlie Wence, PE; Torsten Lienau, PE
Date	August 9, 2019
Copies to	

1. Introduction

The City of Issaquah is interested in constructing a transportation improvement project included in the 2019-2024 Transportation Improvement Program at the intersection of SR 900/12th Avenue NW/NW Sammamish Rd/SE 56th Street, circled in the map below. The intersection is located north of I-90 at the SR 900 Interchange and borders Sammamish State Park. This technical memorandum documents the traffic analysis conducted at the intersection, with and without the proposed transportation improvements.



2. Traffic Volumes and Forecasts

The City of Issaquah maintains a p.m. peak hour travel demand model for transportation concurrency and long range planning purposes. The City routinely updates the model to ensure it reflects changing regional conditions; as well as, remains current with new and planned development within the City limits. The most recent update was completed in 2018, based on 2017 traffic counts. The most recent traffic count at the project intersection was completed in 2017.

The travel demand model forecasts traffic for the year 2040, and is based on existing land use plus committed (pipeline) land use plus planned land use included in the City's Comprehensive Plan. Committed, or pipeline, land use is defined as development that the City of Issaquah has approved and maintains a valid transportation concurrency certificate. Committed land use is, therefore, land use that will happen, but has not yet been constructed and is not generating traffic on the City's transportation network yet.

The proposed project at the intersection of SR 900/12th Avenue NW/NW Sammamish Rd/SE 56th Street is expected to be constructed by 2022. As a result, an intersection analysis for the year of opening was conducted.

Unfortunately, the City of Issaquah does not maintain a specific 2022 travel demand model, so 2022 traffic demand was estimated by interpolating between the existing 2017 and forecasted 2040 traffic volumes.

Additionally, an analysis was done for the set of traffic volumes that reflect existing volumes plus committed traffic volumes, because this traffic demand reflects the total volume of traffic that the City has approved for the intersection and that must meet the City's transportation level of service (LOS) standard for concurrency. This set of traffic volumes does not have a year associated with it, because each approved development has its own timeline for completion, but there is nothing stopping each development from accelerating their completion schedule, which means it is completely viable that this set of volumes could be reached by 2022.

A summary of total entering p.m. peak hour traffic volumes is provided in **Table 1** for each of the analysis scenarios. Between 2017 and 2022, interpolated traffic volumes grew by about 10%. If all the approved and committed development were built in the City, the traffic volumes at this intersection would grow by about 24%.

Table 1.

Existing and Future PM Peak Hour Traffic Volumes at SR 900/12th Avenue NW/NW Sammamish Rd/SE 56th Street

Intersection Approach	2017 Existing	2022 Interpolated	Existing plus Committed
Northbound	1,525	1,685	1,845
Eastbound	580	700	1,025
Southbound	1,820	1,885	2,080
Westbound	385	470	395
Total	**4,310**	**4,740**	**5,345**

3. Proposed Improvements

The City of Issaquah Transportation Improvement Program contains two projects that directly impact the intersection at of SR 900/12th Avenue NW/NW Sammamish Rd/SE 56th Street. The City is currently trying to fund and construct project TR 004, which would widen the westbound leg of the intersection to provide an additional left-turn lane, ultimately providing dual exclusive left turn lanes. Additionally, the northbound approach would be widened to provide an exclusive right-turn lane from SR 900 to 12th Avenue NW.

The City's TIP also lists project TR 035, which would construct one additional general purpose lane in each direction on SR 900/NW 56th Street between East Lake Sammamish Parkway and the I-90 westbound off-ramp. Additionally, this project would construct another westbound general purpose lane between 11th Avenue NW and the I-90 westbound on-ramp, ultimately serving as a direct lane drop onto the on-ramp.

The analysis included in the technical memorandum assumes the construction of project TR 004 only. TR 035 would be needed by 2040 to accommodate full build out of the City's Comprehensive Plan, but is not included in the analysis of this technical memorandum at this time.

4. Intersection Operational Analysis

4.1 Level of Service

Five p.m. peak hour scenarios were analyzed, specifically:

- 2017 Existing Traffic, No Build
- 2022 Traffic, No Build
- 2022 Traffic, Build
- Committed Traffic, No Build
- Committed Traffic, Build

The "No Build" and "Build" description refers to whether the transportation improvement project (TIP) TR 004 is included in the analysis or not. No Build does not assume the transportation improvement and assumes the same intersection configuration as exists today, while Build does assume the transportation improvement.

The results of the operational analysis are provided in **Table 2**. The analysis shows that the intersection continues to get worse as time goes by with no improvements. By 2022, the intersection overall delay increases by 8 seconds, but remains at LOS D. If all the development the City has already approved were to be constructed, the intersection can be expected to degrade to LOS F, and more than double the delay will occur.

The proposed improvement (TIP Project TR 004) will improve the overall operating conditions of the intersection by 2022, with overall delay expected to be less than today, but still operating at LOS D. Ifall the development the City has already approved were to be constructed, the intersection can be expected to operate at LOS E, with an overall 70 seconds of delay, both better than the No Build condition, but does not meet the City's LOS Standard. As mentioned previously, the City has additional projects in the long range TIP that would continue to improve the intersection operations once the remaining development is constructed. The City updates its transportation concurrency system roughly every 2 to 3 years, allowing them to monitor the system and know when the next phase of improvements will be needed.

Table 2.

Existing and Future PM Peak Hour Operational Conditions at SR 900/12th Avenue NW/NW Sammamish Rd/SE 56th Street

Intersection Approach	2017 Existing		2022 No Build		2022 Build		Committed No Build		Committed Build	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
Northbound	25	C	32	C	19	B	31	C	34	C
Eastbound	92	F	114	F	66	E	236	F	140	F
Southbound	37	D	40	D	36	D	76	E	53	D
Westbound	43	D	48	D	79	E	45	D	143	F
Overall	***41***	***D***	***49***	***D***	***39***	***D***	***89***	***F***	***70***	***E***

1. Delay is measured in seconds per vehicle
2. LOS is a "grade" corresponding to the calculated delay, from A to F, where A represents little delay and no signal cycle failures and F represents over-capacity conditions and multiple signal cycle failures.

Interestingly, the biggest delay savings is experienced on the eastbound approach, which decreases from 114 sec/veh in 2022 No Build to 66 sec/veh in 2022 Build. Even though there are no channelization improvements for this approach, improvements elsewhere increase enough capacity to reallocate

additional green time to the eastbound approach, lowering its delay. On the westbound approach, despite an additional left turn lane, delay increases from 48 sec/veh in 2022 No Build to 79 sec/veh in 2022 Build. The increase in delay is likely because the westbound left turn phasing must be converted from protected/permissive in No Build to protected-only in the Build scenarios due to the dual left turn lanes.

Finally, the northbound approach is the other approach with an improvement, where the approach delays decrease from 32 sec/veh in 2022 No Build to 19 sec/veh in 2022 Build due to the addition of an exclusive right-turn lane.

4.2 Queueing

The results of the queue analysis are provided in **Table 3**. The table summarizes both the average and 95th percentile queues for each scenario and for each lane group. Locations where the expected queue exceeds the available storage are shown in bold red.

By 2022, the No Build northbound approach average and 95th percentile queues spill back to the SR 900/I-90 WB off-ramp intersection. Providing the northbound right-turn pocket significantly reduces these queue lengths to stay within the available storage length.

At the westbound approach, the left turn movement's average and 95th percentile queue lengths exceed the 180 ft storage length. In Build, the westbound left average queue does not exceed storage while the 95th percentile queue length exceeds storage but the queue length is shortened by 120 ft. Despite the increase in delay on the westbound approach even with the improvement, the queue lengths are improved due to the additional lane to store vehicles. Operationally, this is an improvement, in that driveways along 12th Avenue NW are blocked less than experienced today.

Table 3

Existing and Future PM Peak Hour Queue Summary at SR 900/12th Avenue NW/NW Sammamish Rd/SE 56th Street

			2017 Existing		2022 No Build		Committed No Build	
Approach Direction	Lane Group	Storage (ft)	Avg. Queue (ft)	95th %ile Queue (ft)	Avg. Queue (ft)	95th %ile Queue (ft)	Avg. Queue (ft)	95th %ile Queue (ft)
Northbound	Left	250	110	165	120	160	145	**255**
	Through/Right	560	185	125	**800**	**890**	180	**1,010**
Eastbound	Left	220	180	**260**	**225**	**355**	**630**	**855**
	Through	1,500	45	90	75	130	120	185
	Right	165	**305**	**495**	**370**	**565**	**510**	**720**
Southbound	Left	150	15	20	20	30	25	50
	Through	1,050	530	750	550	755	490	765
	Right	350	**450**	**745**	**575**	**865**	**900**	**1,230**
Westbound	Left	180	**235**	**330**	**260**	**380**	**215**	**305**
	Through/Right	750	50	95	90	155	75	135
					2022 Build		Committed Build	
Northbound	Left	250			140	245	185	**255**
	Through	560			155	200	210	310
	Right	200			15	15	15	40
Eastbound	Left	220			215	**305**	**570**	**810**
	Through	1,500			70	120	110	175
	Right	165			**305**	**505**	**430**	**635**
Southbound	Left	150			20	35	25	55
	Through	1,050			420	600	400	525
	Right	350			**390**	**795**	**835**	**1,100**
Westbound	Left	180			165	**260**	165	**265**
	Through/Right	750			95	165	80	140

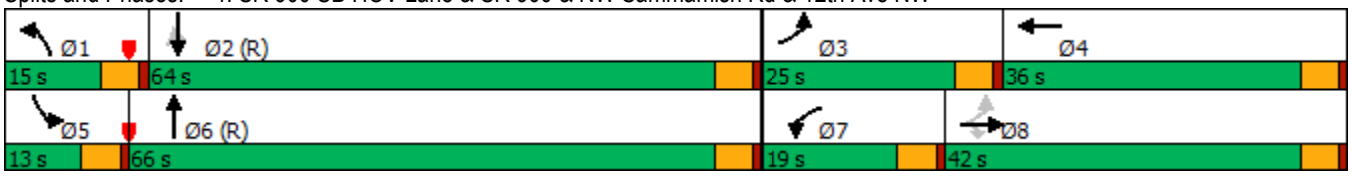
Attachment B

Synchro, SimTraffic Reports

Lane Group	EBL	EBT	EBR	WBL2	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	475	195	435	440	155	175	150	1645	470	40	1283	382
Future Volume (vph)	475	195	435	440	155	175	150	1645	470	40	1283	382
Satd. Flow (prot)	1752	1845	1568	1694	1665	0	1752	3341	0	1752	3505	1516
Flt Permitted	0.169			0.950			0.950			0.950		
Satd. Flow (perm)	310	1845	1517	1678	1665	0	1744	3341	0	1749	3505	1429
Satd. Flow (RTOR)					37			33				
Lane Group Flow (vph)	485	199	444	449	337	0	153	2159	0	41	1309	798
Turn Type	pm+pt	NA	Perm	Prot	NA		Prot	NA		Prot	NA	Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8		8									2
Total Split (s)	25.0	42.0	42.0	19.0	36.0		15.0	66.0		13.0	64.0	64.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	5.0
Act Effct Green (s)	56.0	37.0	37.0	14.0	31.0		10.0	64.0		7.0	59.0	59.0
Actuated g/C Ratio	0.40	0.26	0.26	0.10	0.22		0.07	0.46		0.05	0.42	0.42
v/c Ratio	1.47	0.41	1.11	2.66	0.85		1.22	1.40		0.47	0.89	1.33
Control Delay	255.5	45.6	125.1	785.3	66.5		204.6	214.1		89.2	33.3	182.7
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	255.5	45.6	125.1	785.3	66.5		204.6	214.1		89.2	33.3	182.7
LOS	F	D	F	F	E		F	F		F	C	F
Approach Delay		167.2			477.1			213.4			89.9	
Approach LOS		F			F			F			F	

Intersection Summary	
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 72 (51%), Referenced to phase 2:SBT and 6:NBT, Start of 1st Green	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 2.66	
Intersection Signal Delay: 196.1	Intersection LOS: F
Intersection Capacity Utilization 128.9%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 4: SR 900 SB HOV Lane & SR 900 & NW Sammamish Rd & 12th Ave NW



Lane Group	SBR2
Lane Configurations	
Traffic Volume (vph)	400
Future Volume (vph)	400
Satd. Flow (prot)	0
Flt Permitted	
Satd. Flow (perm)	0
Satd. Flow (RTOR)	
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Total Split (s)	
Total Lost Time (s)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

Intersection Summary

4: SR 900 SB HOV Lane & SR 900 & NW Sammamish Rd & 12th Ave NW Performance by lane

Lane	EB	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB	SB
Movements Served	L	T	R	<	TR	L	T	TR	L	T	T	R>
Denied Del/Veh (s)												
Total Del/Veh (s)	54.0	833.2	50.3	152.7	1282.7	100.6	489.1	509.8	66.0	56.3	125.2	54.4
Vehicles Exited	349	133	342	184	136	119	815	814	39	651	600	719
Hourly Exit Rate	349	133	342	184	136	119	815	814	39	651	600	719

4: SR 900 SB HOV Lane & SR 900 & NW Sammamish Rd & 12th Ave NW Performance by lane

Lane	All
Movements Served	
Denied Del/Veh (s)	136.5
Total Del/Veh (s)	383.9
Vehicles Exited	4901
Hourly Exit Rate	4901

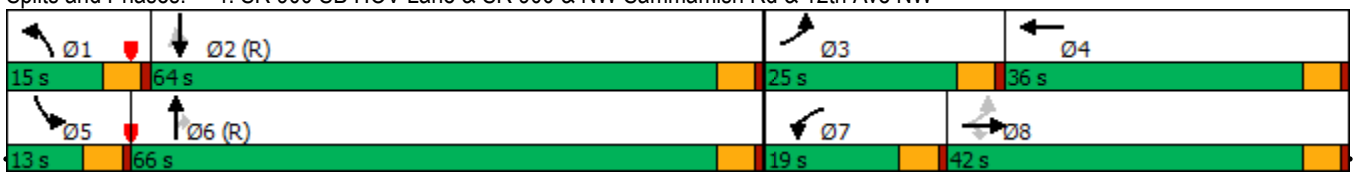
Intersection: 4: SR 900 SB HOV Lane & SR 900 & NW Sammamish Rd & 12th Ave NW

Movement	EB	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	T	R	<	TR	L	T	TR	L	T	T	R>
Maximum Queue (ft)	245	1492	190	205	11534	275	9682	9770	174	1064	1033	375
Average Queue (ft)	238	1461	181	204	5734	197	4727	4765	47	836	965	375
95th Queue (ft)	261	1478	214	208	10863	341	8997	9041	127	1143	1088	377
Link Distance (ft)		1439			14964		15044	15044		1018	1018	
Upstream Blk Time (%)		71								0	3	
Queuing Penalty (veh)		0								4	29	
Storage Bay Dist (ft)	220		165	180		250			150			350
Storage Blk Time (%)	31	5	45	88	1	0	47			38	4	60
Queuing Penalty (veh)	193	41	303	290	5	0	70			15	33	383

Lane Group	EBL	EBT	EBR	WBL2	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	475	195	435	440	155	175	150	1645	470	40	1283	382
Future Volume (vph)	475	195	435	440	155	175	150	1645	470	40	1283	382
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	11	12	12	12	12	12	12	12	11
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	220		165			0	250		200	150		350
Storage Lanes	1		1			0	1		1	1		1
Taper Length (ft)	25						25			25		
Satd. Flow (prot)	1752	1845	1568	3286	1665	0	1752	3505	1568	1752	3505	1516
Flt Permitted	0.169			0.950			0.950			0.950		
Satd. Flow (perm)	310	1845	1517	3235	1665	0	1744	3505	1467	1746	3505	1429
Right Turn on Red						Yes			Yes			
Satd. Flow (RTOR)					37				220			
Link Speed (mph)		30			25			40			35	
Link Distance (ft)		1503			414			15073			1115	
Travel Time (s)		34.2			11.3			256.9			21.7	
Lane Group Flow (vph)	485	199	444	449	337	0	153	1679	480	41	1309	798
Turn Type	pm+pt	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8		8						6			2
Total Split (s)	25.0	42.0	42.0	19.0	36.0		15.0	66.0	66.0	13.0	64.0	64.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	6.0	5.0	5.0	5.0
Act Effct Green (s)	56.0	37.0	37.0	14.0	31.0		10.0	64.0	63.0	7.0	59.0	59.0
Actuated g/C Ratio	0.40	0.26	0.26	0.10	0.22		0.07	0.46	0.45	0.05	0.42	0.42
v/c Ratio	1.47	0.41	1.11	1.37	0.85		1.22	1.05	0.61	0.47	0.89	1.33
Control Delay	255.5	45.6	125.1	229.7	66.5		204.6	73.5	19.5	89.2	33.3	182.7
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	255.5	45.6	125.1	229.7	66.5		204.6	73.5	19.5	89.2	33.3	182.7
LOS	F	D	F	F	E		F	E	B	F	C	F
Approach Delay		167.2			159.7			71.0			89.9	
Approach LOS		F			F			E			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 72 (51%), Referenced to phase 2:SBT and 6:NBT, Start of 1st Green			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.47			
Intersection Signal Delay: 105.3		Intersection LOS: F	
Intersection Capacity Utilization 113.6%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 4: SR 900 SB HOV Lane & SR 900 & NW Sammamish Rd & 12th Ave NW



Lane Group	SBR2
Lane Configurations	
Traffic Volume (vph)	400
Future Volume (vph)	400
Ideal Flow (vphpl)	1900
Lane Width (ft)	12
Grade (%)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Satd. Flow (prot)	0
Flt Permitted	
Satd. Flow (perm)	0
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Total Split (s)	
Total Lost Time (s)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

Intersection Summary

4: SR 900 SB HOV Lane & SR 900 & NW Sammamish Rd & 12th Ave NW Performance by lane

Lane	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Movements Served	L	T	R	<	<	TR	L	T	T	R	L	T
Denied Del/Veh (s)												
Total Del/Veh (s)	59.4	705.3	47.1	90.6	129.2	645.3	272.6	493.4	510.0	8.6	73.8	40.5
Vehicles Exited	367	157	324	170	157	266	125	681	689	387	31	598
Hourly Exit Rate	367	157	324	170	157	266	125	681	689	387	31	598

4: SR 900 SB HOV Lane & SR 900 & NW Sammamish Rd & 12th Ave NW Performance by lane

Lane	SB	SB	All
Movements Served	T	R>	
Denied Del/Veh (s)			78.9
Total Del/Veh (s)	152.0	56.1	284.1
Vehicles Exited	516	702	5170
Hourly Exit Rate	516	702	5170

Intersection: 4: SR 900 SB HOV Lane & SR 900 & NW Sammamish Rd & 12th Ave NW

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	R	<	<	TR	L	T	T	R	L	T
Maximum Queue (ft)	245	1502	190	192	205	4534	275	8074	8168	225	175	1021
Average Queue (ft)	235	1465	164	171	202	2541	263	4161	4201	174	48	773
95th Queue (ft)	274	1492	239	224	216	4514	307	7633	7667	301	139	1159
Link Distance (ft)		1438				15000		15026	15026			1013
Upstream Blk Time (%)		67										0
Queuing Penalty (veh)		0										1
Storage Bay Dist (ft)	220		165	180	180		250			200	150	
Storage Blk Time (%)	40	2	37	15	41	39	60	21	40	1		31
Queuing Penalty (veh)	250	21	249	50	135	174	494	32	187	5		12

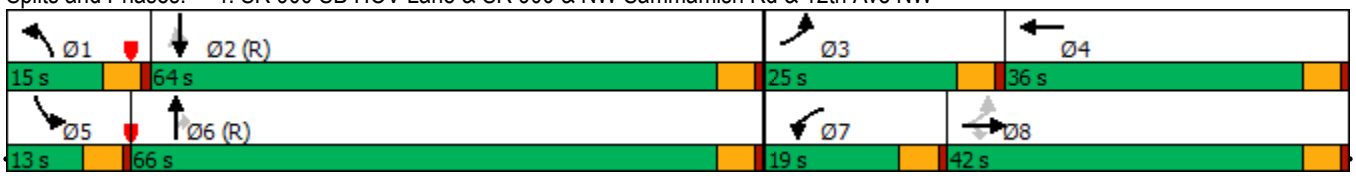
Intersection: 4: SR 900 SB HOV Lane & SR 900 & NW Sammamish Rd & 12th Ave NW

Movement	SB	SB
Directions Served	T	R>
Maximum Queue (ft)	1030	375
Average Queue (ft)	948	374
95th Queue (ft)	1227	378
Link Distance (ft)	1013	
Upstream Blk Time (%)	14	
Queuing Penalty (veh)	150	
Storage Bay Dist (ft)		350
Storage Blk Time (%)	2	58
Queuing Penalty (veh)	15	375

Lane Group	EBL	EBT	EBR	WBL2	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	475	195	435	440	155	175	150	1645	470	40	1283	382
Future Volume (vph)	475	195	435	440	155	175	150	1645	470	40	1283	382
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	11	12	12	12	12	12	12	12	11
Grade (%)		0%			0%			0%			0%	
Storage Length (ft)	220		165			0	250		200	150		350
Storage Lanes	1		1			0	1		1	1		1
Taper Length (ft)	25						25			25		
Satd. Flow (prot)	1752	1845	1568	3286	1665	0	1752	3505	1568	1752	3505	1516
Flt Permitted	0.169			0.950			0.950			0.950		
Satd. Flow (perm)	310	1845	1517	3235	1665	0	1744	3505	1467	1746	3505	1429
Right Turn on Red						Yes			Yes			
Satd. Flow (RTOR)					37				220			
Link Speed (mph)		30			25			40			35	
Link Distance (ft)		1503			414			15048			1115	
Travel Time (s)		34.2			11.3			256.5			21.7	
Lane Group Flow (vph)	485	199	444	449	337	0	153	1679	480	41	1309	798
Turn Type	pm+pt	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	3	8		7	4		1	6		5	2	
Permitted Phases	8		8						6			2
Total Split (s)	25.0	42.0	42.0	19.0	36.0		15.0	66.0	66.0	13.0	64.0	64.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0	6.0	5.0	5.0	5.0
Act Effct Green (s)	56.0	37.0	37.0	14.0	31.0		10.0	64.0	63.0	7.0	59.0	59.0
Actuated g/C Ratio	0.40	0.26	0.26	0.10	0.22		0.07	0.46	0.45	0.05	0.42	0.42
v/c Ratio	1.47	0.41	1.11	1.37	0.85		1.22	1.05	0.61	0.47	0.89	1.33
Control Delay	255.5	45.6	125.1	229.7	66.5		204.6	73.5	19.5	89.2	33.3	182.7
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	255.5	45.6	125.1	229.7	66.5		204.6	73.5	19.5	89.2	33.3	182.7
LOS	F	D	F	F	E		F	E	B	F	C	F
Approach Delay		167.2			159.7			71.0			89.9	
Approach LOS		F			F			E			F	

Intersection Summary			
Area Type:	Other		
Cycle Length: 140			
Actuated Cycle Length: 140			
Offset: 72 (51%), Referenced to phase 2:SBT and 6:NBT, Start of 1st Green			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.47			
Intersection Signal Delay: 105.3		Intersection LOS: F	
Intersection Capacity Utilization 113.6%		ICU Level of Service H	
Analysis Period (min) 15			

Splits and Phases: 4: SR 900 SB HOV Lane & SR 900 & NW Sammamish Rd & 12th Ave NW



Lane Group	SBR2
Lane Configurations	
Traffic Volume (vph)	400
Future Volume (vph)	400
Ideal Flow (vphpl)	1900
Lane Width (ft)	12
Grade (%)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Satd. Flow (prot)	0
Flt Permitted	
Satd. Flow (perm)	0
Right Turn on Red	No
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Total Split (s)	
Total Lost Time (s)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

Intersection Summary

4: SR 900 SB HOV Lane & SR 900 & NW Sammamish Rd & 12th Ave NW Performance by lane

Lane	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Movements Served	L	T	R	<	<	TR	L	T	T	R	L	T
Denied Del/Veh (s)												
Total Del/Veh (s)	57.9	742.1	47.6	91.8	124.1	770.6	162.5	425.5	465.1	2.3	74.9	46.9
Vehicles Exited	379	148	333	167	160	256	120	721	684	427	46	633
Hourly Exit Rate	379	148	333	167	160	256	120	721	684	427	46	633

4: SR 900 SB HOV Lane & SR 900 & NW Sammamish Rd & 12th Ave NW Performance by lane

Lane	SB	SB	All
Movements Served	T	R>	
Denied Del/Veh (s)			86.0
Total Del/Veh (s)	137.3	56.4	271.6
Vehicles Exited	552	707	5333
Hourly Exit Rate	552	707	5333

Intersection: 4: SR 900 SB HOV Lane & SR 900 & NW Sammamish Rd & 12th Ave NW

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	R	<	<	TR	L	T	T	R	L	T
Maximum Queue (ft)	245	1490	190	192	205	6912	275	6466	6458	225	174	1025
Average Queue (ft)	243	1461	167	177	204	3522	209	3585	3635	208	68	760
95th Queue (ft)	248	1479	224	227	206	7051	329	6347	6389	304	165	1207
Link Distance (ft)		1438				14988		15001	15001			1013
Upstream Blk Time (%)		70										0
Queuing Penalty (veh)		0										3
Storage Bay Dist (ft)	220		165	180	180		250			200	150	
Storage Blk Time (%)	44	2	36	16	51	30	13	42	46	0		34
Queuing Penalty (veh)	275	22	243	51	167	132	104	63	216	2		14

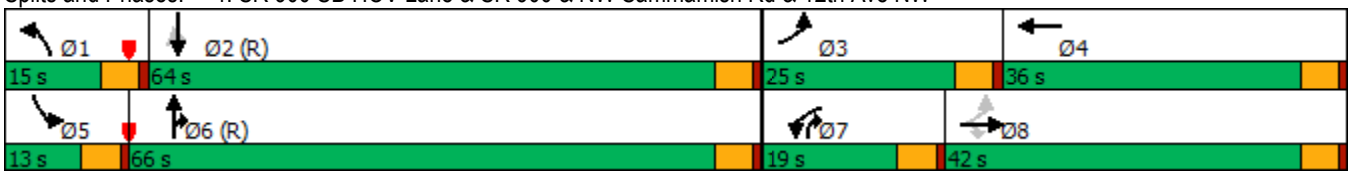
Intersection: 4: SR 900 SB HOV Lane & SR 900 & NW Sammamish Rd & 12th Ave NW

Movement	SB	SB
Directions Served	T	R>
Maximum Queue (ft)	1029	375
Average Queue (ft)	952	375
95th Queue (ft)	1128	375
Link Distance (ft)	1013	
Upstream Blk Time (%)	10	
Queuing Penalty (veh)	109	
Storage Bay Dist (ft)		350
Storage Blk Time (%)	2	62
Queuing Penalty (veh)	17	398

Lane Group	EBL	EBT	EBR	WBL2	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	475	195	435	440	155	175	150	1645	470	40	1283	382
Future Volume (vph)	475	195	435	440	155	175	150	1645	470	40	1283	382
Satd. Flow (prot)	1752	1845	1568	3286	1665	0	1752	3505	1568	1752	3505	1516
Flt Permitted	0.169			0.950			0.950			0.950		
Satd. Flow (perm)	310	1845	1517	3235	1665	0	1744	3505	1568	1746	3505	1429
Satd. Flow (RTOR)					37				288			
Lane Group Flow (vph)	485	199	444	449	337	0	153	1679	480	41	1309	798
Turn Type	pm+pt	NA	Perm	Prot	NA		Prot	NA	pt+ov	Prot	NA	Perm
Protected Phases	3	8		7	4		1	6	6 7	5	2	
Permitted Phases	8		8									2
Total Split (s)	25.0	42.0	42.0	19.0	36.0		15.0	66.0		13.0	64.0	64.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0		5.0	5.0		5.0	5.0	5.0
Act Effct Green (s)	56.0	37.0	37.0	14.0	31.0		10.0	64.0	82.0	7.0	59.0	59.0
Actuated g/C Ratio	0.40	0.26	0.26	0.10	0.22		0.07	0.46	0.59	0.05	0.42	0.42
v/c Ratio	1.47	0.41	1.11	1.37	0.85		1.22	1.05	0.46	0.47	0.89	1.33
Control Delay	255.5	45.6	125.1	229.7	66.5		204.6	73.5	7.9	89.2	33.3	182.7
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	255.5	45.6	125.1	229.7	66.5		204.6	73.5	7.9	89.2	33.3	182.7
LOS	F	D	F	F	E		F	E	A	F	C	F
Approach Delay		167.2			159.7			68.6			89.9	
Approach LOS		F			F			E			F	

Intersection Summary	
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 72 (51%), Referenced to phase 2:SBT and 6:NBT, Start of 1st Green	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.47	
Intersection Signal Delay: 104.4	Intersection LOS: F
Intersection Capacity Utilization 113.6%	ICU Level of Service H
Analysis Period (min) 15	

Splits and Phases: 4: SR 900 SB HOV Lane & SR 900 & NW Sammamish Rd & 12th Ave NW



Lane Group	SBR2
Lane Configurations	
Traffic Volume (vph)	400
Future Volume (vph)	400
Satd. Flow (prot)	0
Flt Permitted	
Satd. Flow (perm)	0
Satd. Flow (RTOR)	
Lane Group Flow (vph)	0
Turn Type	
Protected Phases	
Permitted Phases	
Total Split (s)	
Total Lost Time (s)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

Intersection Summary

4: SR 900 SB HOV Lane & SR 900 & NW Sammamish Rd & 12th Ave NW Performance by lane

Lane	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Movements Served	L	T	R	<	<	TR	L	T	T	R	L	T
Denied Del/Veh (s)												
Total Del/Veh (s)	62.6	733.0	49.4	103.0	151.7	701.4	112.1	379.8	416.9	9.8	78.3	52.8
Vehicles Exited	343	138	314	179	167	256	118	744	700	388	43	634
Hourly Exit Rate	343	138	314	179	167	256	118	744	700	388	43	634

4: SR 900 SB HOV Lane & SR 900 & NW Sammamish Rd & 12th Ave NW Performance by lane

Lane	SB	SB	All
Movements Served	T	R>	
Denied Del/Veh (s)			91.6
Total Del/Veh (s)	132.3	54.6	244.4
Vehicles Exited	585	699	5308
Hourly Exit Rate	585	699	5308

Intersection: 4: SR 900 SB HOV Lane & SR 900 & NW Sammamish Rd & 12th Ave NW

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	R	<	<	TR	L	T	T	R	L	T
Maximum Queue (ft)	245	1502	190	192	205	4487	275	5567	5554	225	174	1040
Average Queue (ft)	236	1431	161	185	203	2660	197	3189	3231	196	56	786
95th Queue (ft)	273	1620	227	205	206	4540	316	5548	5566	313	136	1283
Link Distance (ft)		1438				15031		14967	14967			1013
Upstream Blk Time (%)		65										0
Queuing Penalty (veh)		0										5
Storage Bay Dist (ft)	220		165	180	180		250			200	150	
Storage Blk Time (%)	40	5	35	16	63	10	0	43	45	0	0	37
Queuing Penalty (veh)	252	42	237	53	209	43	1	65	213	2	0	15

Intersection: 4: SR 900 SB HOV Lane & SR 900 & NW Sammamish Rd & 12th Ave NW

Movement	SB	SB
Directions Served	T	R>
Maximum Queue (ft)	1026	375
Average Queue (ft)	912	374
95th Queue (ft)	1290	380
Link Distance (ft)	1013	
Upstream Blk Time (%)	10	
Queuing Penalty (veh)	109	
Storage Bay Dist (ft)		350
Storage Blk Time (%)	3	57
Queuing Penalty (veh)	27	364

4: SR 900 SB HOV Lane & SR 900 & NW Sammamish Rd & 12th Ave NW Performance by lane

Lane	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Movements Served	L	T	R	<	<	TR	L	T	T	R	L	T
Denied Del/Veh (s)												
Total Del/Veh (s)	60.6	739.9	47.2	126.2	177.2	457.5	139.5	443.8	490.1	8.0	78.9	50.4
Vehicles Exited	335	147	356	188	166	282	120	741	692	382	40	588
Hourly Exit Rate	335	147	356	188	166	282	120	741	692	382	40	588

4: SR 900 SB HOV Lane & SR 900 & NW Sammamish Rd & 12th Ave NW Performance by lane

Lane	SB	SB	All
Movements Served	T	R>	
Denied Del/Veh (s)			77.4
Total Del/Veh (s)	154.0	54.9	254.5
Vehicles Exited	531	716	5284
Hourly Exit Rate	531	716	5284

Intersection: 4: SR 900 SB HOV Lane & SR 900 & NW Sammamish Rd & 12th Ave NW

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	R	<	<	TR	L	T	T	R	L	T
Maximum Queue (ft)	245	1502	190	262	275	2862	275	6829	6910	225	175	1038
Average Queue (ft)	233	1467	182	231	272	1707	183	3892	3931	193	64	835
95th Queue (ft)	274	1494	204	312	279	2752	319	7059	7102	303	170	1269
Link Distance (ft)		1438				15031		14967	14967			1013
Upstream Blk Time (%)		70										1
Queuing Penalty (veh)		0										7
Storage Bay Dist (ft)	220		165	250	250		250			200	150	
Storage Blk Time (%)	35	4	45	6	46	25	12	42	46	0		34
Queuing Penalty (veh)	218	33	302	19	152	111	98	63	216	1		14

Intersection: 4: SR 900 SB HOV Lane & SR 900 & NW Sammamish Rd & 12th Ave NW

Movement	SB	SB
Directions Served	T	R>
Maximum Queue (ft)	1028	375
Average Queue (ft)	1010	374
95th Queue (ft)	1056	377
Link Distance (ft)	1013	
Upstream Blk Time (%)	11	
Queuing Penalty (veh)	120	
Storage Bay Dist (ft)		350
Storage Blk Time (%)	1	62
Queuing Penalty (veh)	11	396

4: SR 900 SB HOV Lane & SR 900 & NW Sammamish Rd & 12th Ave NW Performance by lane

Lane	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Movements Served	L	T	R	<	<	TR	L	T	T	R	L	T
Denied Del/Veh (s)												
Total Del/Veh (s)	62.6	745.9	45.9	168.8	215.3	358.9	284.5	503.2	515.8	11.9	91.4	59.3
Vehicles Exited	385	142	340	188	170	299	112	666	678	377	40	666
Hourly Exit Rate	385	142	340	188	170	299	112	666	678	377	40	666

4: SR 900 SB HOV Lane & SR 900 & NW Sammamish Rd & 12th Ave NW Performance by lane

Lane	SB	SB	All
Movements Served	T	R>	
Denied Del/Veh (s)			70.6
Total Del/Veh (s)	113.3	56.7	257.7
Vehicles Exited	616	693	5372
Hourly Exit Rate	616	693	5372

Intersection: 4: SR 900 SB HOV Lane & SR 900 & NW Sammamish Rd & 12th Ave NW

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	R	<	<	TR	L	T	T	R	L	T
Maximum Queue (ft)	245	1490	190	312	325	3058	275	7749	7726	225	174	1058
Average Queue (ft)	243	1461	169	295	319	1308	250	4130	4154	200	49	779
95th Queue (ft)	248	1479	217	358	344	2843	322	8002	8011	298	130	1175
Link Distance (ft)		1438				15031		14967	14967			1013
Upstream Blk Time (%)		70										0
Queuing Penalty (veh)		0										4
Storage Bay Dist (ft)	220		165	300	300		250			200	150	
Storage Blk Time (%)	50	0	39	5	42	16	50	27	43	0	0	41
Queuing Penalty (veh)	317	2	261	18	140	71	418	40	201	3	0	17

Intersection: 4: SR 900 SB HOV Lane & SR 900 & NW Sammamish Rd & 12th Ave NW

Movement	SB	SB
Directions Served	T	R>
Maximum Queue (ft)	1027	375
Average Queue (ft)	871	374
95th Queue (ft)	1133	378
Link Distance (ft)	1013	
Upstream Blk Time (%)	5	
Queuing Penalty (veh)	51	
Storage Bay Dist (ft)		350
Storage Blk Time (%)	3	59
Queuing Penalty (veh)	26	379

Attachment E

Valerie Porter

From: Julian - <jmydlil@gmail.com>
Sent: Wednesday, June 30, 2021 4:50 PM
To: Valerie Porter
Subject: Re: Design of 12th Avenue NW & SR-900 improvements

Thank you for clarifying the design plan. My main concern with this plan is that it nearly totally inhibits the free ability for bikers to turn left into the Pickering shopping area (likely the main destination of those who decide to cross Highway 900), which would lead many folks to just skip the separated bike lane, and thus wouldn't really have any substantial improvement over the current condition.

Yes, I would like to be a party of record.

Regards,
Julian Mydlil

On Wed, Jun 30, 2021 at 4:01 PM Valerie Porter <Valeriep@issaquahwa.gov> wrote:

> Hello,
>
> Thank you for providing the below comment, which has been shared with the applicant, Public Works Transportation Division. Your comment will be considered and added to the Notice of Decision.
>
> Yes, the applicant is proposing a raised bicycle lane that will be separated from the travel lane by a 6-foot-wide landscape strip. The project is still in the design phase with construction starting in Spring 2022.
>
> Would you like to become a party of record? This will allow you to stay informed about the project and receive the Notice of Decision once issued. Please be aware this permit does not focus on the entire street improvement project. To stay informed about this project and other transportation related projects, please subscribe to the City's listserv.
>
> Should you have additional comments or concerns, please feel free to contact me.
>
> Thank you,
>
> **Valerie Porter**
>
> Associate Planner

City of Issaquah

Community Planning and Development Department

Office: 425-837-3100

Direct: 425-837-3094

www.issaquahwa.gov

From: Julian - <jmydlil@gmail.com>
Sent: Thursday, June 24, 2021 3:15 PM
To: Valerie Porter <Valeriep@issaquahwa.gov>
Subject: Design of 12th Avenue NW & SR-900 improvements

Hello Valerie Porter,

I was just looking over the design of the 12th / SR-900 improvements and had one quick clarifying question. For everyday bikers, a crucial connection is crossing 17th Avenue then turning left into the Pickering Square shopping complex (PCC, Office Depot, Michaels, etc.). As it is today, this is a challenge that presents several potential conflicts between cars and the biker doing so, including an unpainted bike sprint across the intersection in both directions and no bike lanes once one is across. On the design plan set, it appears that the new bike lane will be separated from the standard road lane without a smooth connection for bike traffic arriving from NW Sammamish Rd on the other side of the intersection (particularly referring to the grey bar from the crosswalk to the green 6' median). Am I viewing this design correctly? Does this project still have a projected spring 2022 build out timeline?

Regards,

Julian Mydlil

Issaquah Transportation Advisory Boardmember